SkyScoop

The Newsletter of the National Weather Service in Wilmington, Ohio

National Oceanic and Atmospheric Administration (NOAA) – US Department of Commerce (DOC)

ISSUE 21 FALL/WINTER 2013

Line of Strong Autumn Showers Produces Several Tornadoes

Andy Hatzos

October 2013 ended with a busy night for the National Weather Service in Wilmington, Ohio as a line of strong storms pushed through the area, producing four tornadoes and widespread wind damage.

Strong surface low pressure moved northeast from the Mississippi Valley into the Great Lakes during the evening hours of Thursday, October 31. A line of showers developed along a cold front, which moved quickly east through the Ohio Valley. Because conditions were not particularly warm, there was not enough instability in the atmosphere to generate more than a few widely scattered lightning strikes. However, due to very strong wind shear, the line of showers became severe as it raced across Indiana. Upon entering the NWS Wilmington forecast area and moving across Ohio, several wind gusts over 60 MPH were recorded. Damage was reported in 38 of the 52 counties served by NWS Wilmington.

This restaurant in Vandalia, Ohio suffered significant damage to its windows, roof, and façade after being hit by an EF1 tornado. Several people inside were injured by flying glass, while cars in the lot outside were pushed from their parked locations. ***Photo courtesy of Julie Dian-Reed (NWS employee).***

Although straight-line wind damage was fairly widespread, four weak tornadoes also developed along the line of showers, producing more significant damage in a few select locations. The most significant of the tornadoes impacted Vandalia, Ohio, tracking for over half a mile near the US-40 and Interstate 75 interchange. A few commercial buildings were significantly damaged, including a restaurant, in which several people were injured by flying glass. Several homes in a nearby neighborhood were also damaged, with three houses rendered uninhabitable. The tornado was rated EF1 on the Enhanced Fujita Scale, with maximum winds estimated to be as high as 110 MPH.

Another EF1 tornado was confirmed in Licking County, Ohio, where several trees were snapped northwest of Hebron. Two EF0 tornadoes also occurred – one in far northeastern Miami County, Ohio, and one in the southern portion of Columbus, Ohio.

While the most intense and deadly tornadoes are usually spawned by supercell thunderstorms, tornadoes that develop along squall lines come with their own set of challenges.

(Continued on page 7)

INSIDE THIS ISSUE:

A Letter from the Warning Coordination Meteorologist

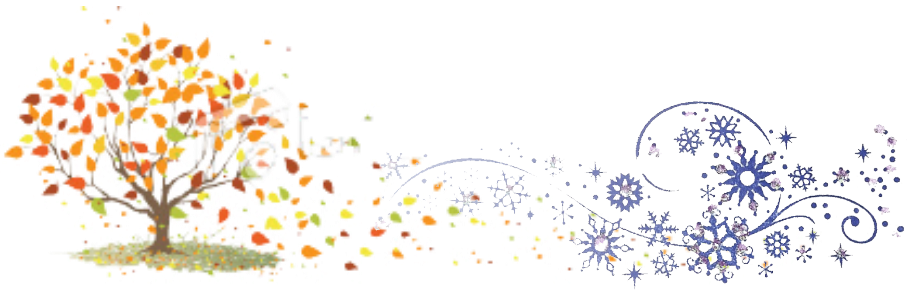
Hello!

This is the 18th year for the "SkyScoop" publication. We hope you find the articles in this newsletter to be interesting and informative. A number of our staff members have contributed the articles included in this issue. Among the topics included are the potential dangers of sub-advisory winter weather events, the 2013-2014 winter outlook, the benefits of dual-polarization radar technology, a look back at the 1947 Thunderstorm Project, and information about a new type of upper air radiosonde. We're always looking for your article ideas for future issues of SkyScoop! You can submit your suggestions to us via Facebook or Twitter or send an email to spotreport.iln@noaa.gov.

I'd like to thank all the Skywarn spotters that have supported our warning program in the past. This includes emergency service personnel, private citizens, and the amateur radio community. Amateur radio operators play a critical role in the Skywarn process and their efforts are greatly appreciated. Special thanks go to those that function as section net control operators and to the local amateur radio operators that work with us here at the NWS Wilmington office. Although they are volunteers, they activate upon our request, no matter the time of day or night. This year we've seen less severe weather activity than normal here in NWS Wilmington's forecast area, but that trend certainly won't continue forever. We rely on our Skywarn spotters to provide valuable reports during severe weather, flooding, and even winter weather.

Skywarn spotters, providing reliable real-time severe weather reports, are a vital part of the warning process for the National Weather Service. Our office in Wilmington, Ohio conducts an average of 45 spotter training sessions each year, including one advanced class, for around 1800 to 2300 spotters. We'll be starting the majority of our 2014 spotter training sessions shortly after January 1st. Each volunteer spotter should attend a training session every two or three years. Our program changes from year to year, and there is always something new to learn. Be sure to check our website in the coming months for the latest listing of classes; it will be updated as new classes are scheduled. If you have any questions, please contact our office.

We extend a special welcome to any new Skywarn spotters and thank those who continue to work with us as members of the Wilmington Skywarn network. As always, we look forward to seeing you at next year's spotter training classes!



Regards,

Mary Jo Parker

Mary Jo Parker
Warning Coordination Meteorologist
National Weather Service Wilmington, OH
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Left: Preparing for the morning weather balloon launch on May 4, 2013 with the rising sun painting a beautiful scene on the clouds overhead.
Right: Altocumulus and a blue summer sky created a striking backdrop for the radome on August 18th. ***Photos courtesy of Michael Kurz (NWS employee).***

Commemorating the Thunderstorm Project

Michael Kurz

It has been 66 years since pilots from the All Weather Flying Center at the Clinton County Army Air Force Base (CCAAFB) deliberately flew their P-61C Black Widow airplanes into dark, menacing storm clouds developing in the skies over Wilmington, Ohio. Their mission was to make as many traverses as possible through storms of all intensities and stages of development, all for the purpose of discovering the causes and characteristics of thunderstorms. The Thunderstorm Project was the nation's first large-scale scientific study of thunderstorms. It took place in two phases: the first near Orlando, Florida in 1946 and the second around Wilmington, Ohio in 1947.

P-61C Black Widow squadron ready for takeoff from the Clinton County Army Air Force Base during the 1947 Ohio phase of the Thunderstorm Project. ***Photo courtesy of the Clinton County Historical Society.***

This historic, pioneering thunderstorm research project was led by the U.S. Weather Bureau with assistance from the Army Air Force, Navy, and the National Advisory Committee for Aeronautics (the predecessor of NASA). Data collected by flying a vertical stack of planes simultaneously through the storms was supplemented by a dense micronetwork of surface, upper air, and radar observing stations that continuously monitored the surrounding environment. In fact, the Thunderstorm Project was the first weather research study in which airplanes and radar had a central role. All the analysis, plotting, and computation of the massive amounts of data was performed by hand and completed by 1949. Among the most significant findings that stemmed from the Thunderstorm Project was the three stage model of the life cycle of a thunderstorm.

After discovering that a Florida historical marker already existed to commemorate the 1946 phase, Scott Hickman and I, meteorologists here at NWS Wilmington, spent the past year collaborating with the Clinton County Historical Society to pursue an Ohio historical marker in honor of the 1947 phase. Outside of work, many painstaking hours were devoted to researching the Thunderstorm Project, contacting experts, fundraising, and assembling a thoroughly documented marker application package for the Ohio Historical Society (OHS). All our efforts paid off in a matter of months, as we raised enough funds for the marker and received formal approval from the OHS. Kay Fisher, Director of the Clinton County Historical Society, reflected, "I didn't realize in May 2012, when I first met with Mike and Scott about applying for an Ohio historical marker for the Thunderstorm Project, what an exciting journey we were about to embark on. It truly was a collaborative effort."

Kay Fisher, Director of the Clinton County Historical Society, welcomes attendees to the dedication ceremony for a Ohio historical marker commemorating the 1947 phase of the Thunderstorm Project. ***Photo courtesy of Michael Kurz (NWS Employee).***

A dedication ceremony for the Thunderstorm Project Ohio historical marker was held on Sunday, May 5, 2013 at the Lytle Creek Greenway on Davids Drive just across the street from Wilmington Air Park, formerly the site of the CCAAFB, which served as headquarters for the project in 1947. Ken Haydu, Meteorologist-in-Charge at NWS Wilmington, spoke about the history of the National Weather Service while Scott and I spoke about the history and lasting significance of the Thunderstorm Project. Other speakers included Wilmington Mayor Randy Riley and Lieutenant Colonel Robert S. Wacker, a professor of atmospheric science at Wright-Patterson Air Force Base in Dayton, Ohio. Around fifty individuals attended the ceremony

(Continued on page 5)

Examples of New Dual-Pol Radar Data in NWS Operations

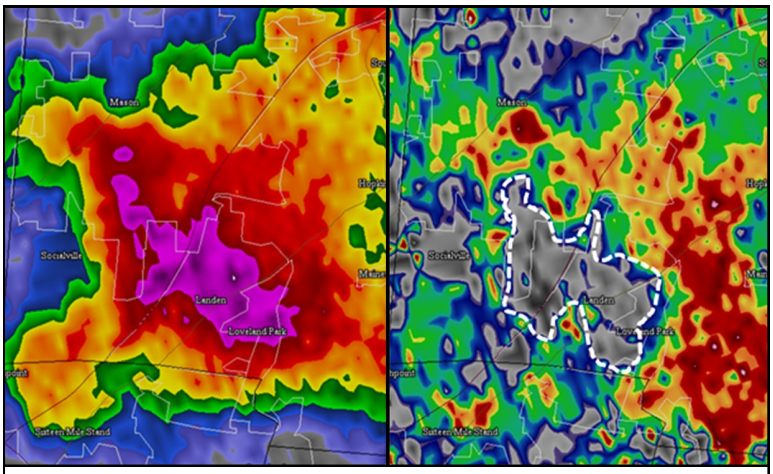
Seth Binau

The KILN WSR-88D radar received its dual-polarization upgrade in late August 2012. ***Photo courtesy of Michael Kurz (NWS Employee).***

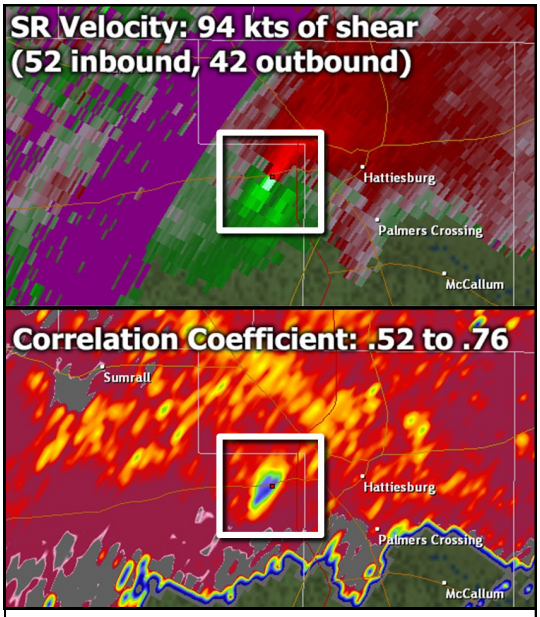
On August 28th 2012, the Warning Surveillance Radar-1988D (WSR-88D) located at the National Weather Service (NWS) office in Wilmington, OH (KILN) received its greatest technological advancement since being deployed in 1994. That advancement, called dual-polarization, ushered in a new and exciting period in radar meteorology for the NWS and all users of Doppler radar data. A total of 122 WSR-88Ds across the country, including those owned by the NWS, the Federal Aviation Administration, and the Department of Defense, received the upgrade by the middle of 2013, bringing the two-year deployment period to a close. Prior to the upgrade, the KILN radar was a single-polarization radar, meaning each radar pulse was sent only in a horizontal orientation. With the upgrade, hardware and software were added to the radar to transmit and receive a *vertically*-oriented pulse, allowing the radar to "see" targets on these two separate vertical and horizontal channels. The *ratio* of how targets are sampled via these two pulse orientations is processed by complex algorithms, giving meteorologists extra information about the size, shape, and characteristics of the targets that was not previously available.

Large Hail

The image at right shows how dual-polarization radar data can help NWS meteorologists detect hazardous weather. On April 21, 2013, severe thunderstorms developed over Warren County, Ohio, producing large hail in the Maineville/Landen areas. While high reflectivity values (pink hues in the left half of image) are typically associated with hail, it usually takes a spotter report to confirm it. The dual-polarization "differential reflectivity" product (right half of the image) lends confidence to the presence of hail in this area (within the dashed white line) where values below 0 dB (grey/black hues) are strongly correlated to hail. Dual-polarization radar data can add that extra measure of confidence to what meteorologists are seeing in the data.



This storm produced large hail over Warren County on April 21, 2013. Reflectivity values (left) and differential reflectivity values (right) shown. Dashed white line denotes the area of large hail. ***Image courtesy of NWS Wilmington, OH.***



The violent Hattiesburg, MS tornado as seen on radar. Storm relative velocity (top) and correlation coefficient (bottom) shown. ***Image courtesy of NWS Jackson, MS.***

Tornadic Debris Signature

While the most recent tornado season was thankfully rather quiet within NWS Wilmington's warning area, other NWS offices across the country unfortunately weren't as lucky. The image to the left (top half) depicts a radar velocity image of the violent Hattiesburg, MS EF4 tornado as it approached the city on February 10, 2013. With dual-polarization "Correlation Coefficient" data (bottom half), a product which measures the similarity of the size/shape of the targets that the radar is sampling, NWS meteorologists were able to detect tornado debris being lofted into the air. The presence of a large relative minimum in correlation coefficient in the same location as the velocity couplet (within the white boxes in this example) confirms debris is being lofted by a tornado. This signature implies a tornado is already causing damage, which can be conveyed by the meteorologist in warnings and follow-up statements. A strong velocity couplet on the radar may indicate a strong circulation exists, but generally the meteorologist will not know for sure if that circulation has reached the ground without a spotter report. However, even in instances where spotter reports are hard to come by, such as nighttime or rain-wrapped tornadoes, the tornadic debris signature provides confirmation that a tornado is in fact causing damage on the ground.

Picking Up Every Litter Bit

Andy Latto

Several times each year, staff of the NWS Wilmington, Ohio office volunteer to pick up trash along a two-mile stretch of the Highway 73 Wilmington Bypass as part of Ohio's Adopt-a-Highway program. ***Photos courtesy of Michael Kurz and Florence Quallen (NWS Employees).***

In late 2012, the National Weather Service Wilmington Weather Forecast Office and co-located Ohio River Forecast Center (OHRFC) joined forces to adopt a two-mile segment of the Highway 73 Wilmington Bypass. The Adopt-a-Highway program is managed through the Ohio Department of Transportation. There are over 1400 groups statewide that volunteer on a regular basis to clean up two-mile segments of state and U.S. highways and interstates throughout Ohio. The Department of Transportation provides volunteers with safety training, trash bags, and safety vests, in addition to two blue Adopt-a-Highway signs on each end of the adopted highway segment. Groups sign up for a two-year renewable commitment to maintain their stretch of highway. Debbie Duquette, administrative support assistant for the OHRFC, says, "It's a lot of fun to do something like this when you're out as part of a group." By adopting this two-mile segment of the Highway 73 bypass, staff of NWS Wilmington are able to serve their community in another manner by volunteering their free time several times each year to keep this stretch of highway clean and beautiful. "It's a dirty job, but somebody's gotta do it!" Debbie adds with a smile.

Thunderstorm Project

(continued from page 3)

Speakers from the dedication ceremony for the Thunderstorm Project historical marker . ***Photo courtesy of Michael Kurz (NWS Employee).***

despite sprinkles and a chilly breeze (fortunately no thunderstorms!). Scott and I had the honor of unveiling the marker, which gave us both a tremendous feeling of satisfaction and pride.

Before coming to NWS Wilmington, I had never even heard of the Thunderstorm Project. I was amazed to learn that such an important piece of meteorological history took place just a mile or so down the road from where our NWS office is located today. It was a huge honor to be part of this effort to commemorate the work of those dedicated pioneers of thunderstorm research, especially the brave pilots who flew through the storms.

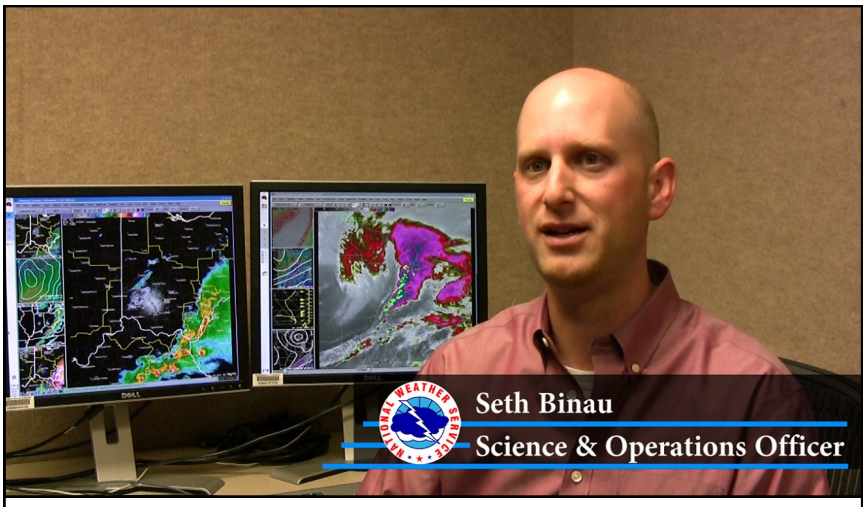
Learn More!

Find additional Thunderstorm Project information, photos, and video on our website:
www.erh.noaa.gov/iln/research/ThunderstormProject/TSP.php

NWS Staff Reflect on March 2, 2012 Tornado Outbreak

Michael Kurz

Since the National Weather Service forecast office in Wilmington, Ohio first opened in February 1994, no tornado outbreak within its county warning area has been as widespread or prolific as that of March 2, 2012. On that day, eleven individuals within the warning area lost their lives as a dozen tornadoes, including the office's first EF4 tornado in more than a decade, touched down across southeast Indiana, northern Kentucky, and south-central Ohio. The office issued its first tornado emergency warnings during the event and afterwards organized five ground survey teams in addition to an aerial survey.



NWS Wilmington staff reflect on the March 2, 2012 tornado outbreak in a series of four retrospective videos. ***Image courtesy of NWS Wilmington, OH.***

So much of what we do in the National Weather Service before, during, and after severe weather events can go unnoticed by those outside the office. NWS forecasts and warnings are not simply the result of an automated process. It is important to remember the human connection; these products are created by people who are not only passionate about weather but also care deeply about protecting the customers they serve. The teamwork and dedication among those at NWS Wilmington who worked during the historic tornado outbreak of March 2 was inspiring, as was everyone's willingness to pitch in and conduct an unprecedented number of damage surveys in the days that followed, despite working many long, exhausting hours. To mark the one-year anniversary of this historic tornado outbreak, our office produced a series of retrospective videos earlier this year with staff members sharing their thoughts and recollections of the days leading up to and following that significant severe weather event.

Learn what goes on behind the scenes at the National Weather Service before, during, and after a significant severe weather event like March 2, 2012: www.weather.gov/iln/march2_videos

Our office published this four-part retrospective video series over the course of March and April 2013. The series has received high praise from emergency managers, the media, the public, as well as from within the NWS. Liz Quoetone, instructor at the NWS Warning Decision Training Branch in Norman, Oklahoma, stated, "If no one knew what it's like to be part of a weather forecast office and have these events unfold, they would after seeing [these] videos. I appreciate the honesty that [the] staff shared."

Earlier this year our office was presented the Department of Commerce Bronze Medal Award for outstanding performance prior to, during, and following the March 2 tornado outbreak. We continue to receive accolades for our service during that event, such as these comments from Fred Griffin, Emergency Management Director for Wayne County, Indiana: "Thank you for your life-saving actions then and your continued efforts to educate and inform. My compliments on a tough job done very well."

NWS Wilmington was presented the Department of Commerce Bronze Medal for exemplary performance during the March 2, 2012 tornado outbreak. ***Image courtesy of NWS Wilmington, OH.***

Calling All Amateur Radio Operators!

Mary Jo Parker

The National Weather Service in Wilmington, Ohio has had a long and positive partnership with the amateur radio community within our forecast area. Skywarn amateur radio operators relay reports of severe weather to our office, which aids our decision-making during the warning process. In addition to supporting our dozens of spotter training classes each year, the Cincinnati, Columbus, and Dayton Skywarn networks take turns sponsoring our annual advanced spotter training class. They also assist with our activities each May at the Dayton Hamvention, one of the world's largest gatherings of amateur radio operators. We at the National Weather Service thank all Skywarn amateur radio operators for their contributions toward our warning program and the protection of life and property.

During significant weather events, amateur radio operators volunteer to relay their severe weather reports to us here at the National Weather Service. ***Photo courtesy of Michael Kurz (NWS employee).***

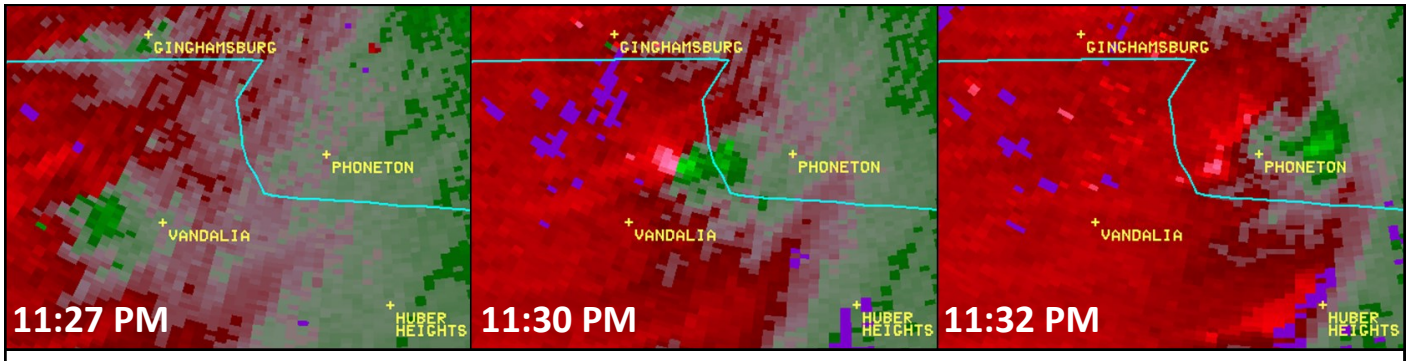
If you are an amateur radio operator but not a severe weather spotter, we invite you to become a trained Skywarn spotter. As a trained spotter, your reports contribute directly toward saving lives. It only requires a couple of hours of training every one to two years to be an active member of the Skywarn severe weather spotter program. Severe thunderstorms and tornadoes tend to affect relatively small areas, so the more spotters we have the better our chances of receiving critical severe weather reports.

Our spotter training classes are held every year from late winter through early spring. The schedule of classes can be found on our website: http://www.weather.gov/iln/spottertrainingschedule. Be sure to check routinely for additions or updates to the training class schedule. If you have friends in the amateur radio community, please encourage them to become a Skywarn severe weather spotter as well. We need your help!

Tornadoes

(continued from page 1)

Moving along with a line of showers or storms, these tornadoes move at a rapid pace, often as fast as 50 to 70 MPH. Squall line tornadoes are typically very shallow in height and have extremely short life cycles (almost always less than ten minutes), making them difficult to detect on radar. An analysis of radar imagery from the Terminal Doppler Weather Radar (TDWR) in Miami County, Ohio indicated that the circulation that produced the Vandalia tornado existed for only about six minutes. In fact, indications of a strong enough circulation to be directly associated with the tornado were detected on only two of the one-minute TDWR radar scans (11:29 PM and 11:30 PM). Although tornadoes of this nature are usually weak (EF0 or EF1), their poor detectability makes advance warning difficult, and their fast pace provides little time for people to move to safety.



Dayton TDWR imagery of the quick-developing circulation that produced the Vandalia, OH tornado on October 31, 2013. The tornado touched down around 11:30 PM (middle) and dissipated a short time later. All times are in EDT. ***Images courtesy of the Federal Aviation Administration.***

The Dangers of Sub-Headline Winter Weather Events

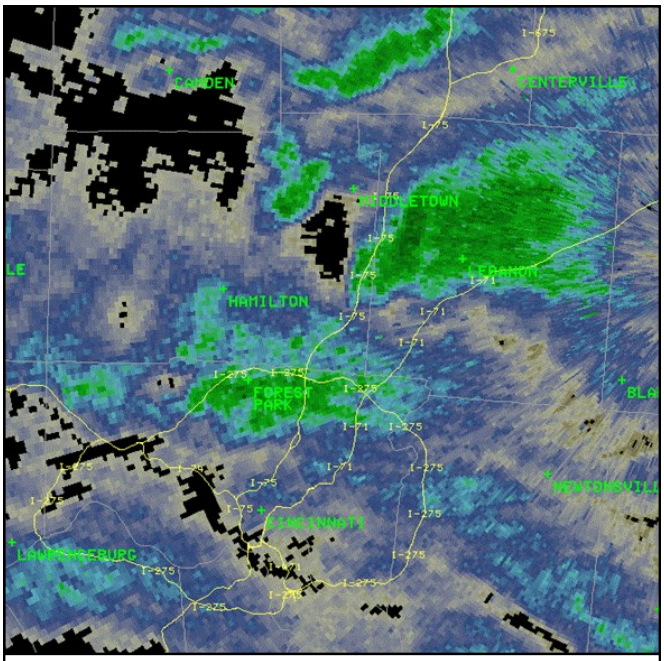
Andy Latto

Each winter season, the National Weather Service in Wilmington, Ohio issues a variety of headlines, ranging from advisories to watches and warnings. Issued several hours to several days in advance, these headlines cover a wide array of winter weather phenomena, whether a couple inches of snow or several inches of snow with strong winds and dangerous wind chills. Because of the advance notice of these hazards, drivers heading out on the roadways are informed of potentially hazardous road conditions, and therefore can use extra caution and allot extra time for their travels. In addition, winter weather headlines are typically issued for events that feature widespread hazardous weather conditions, which often result in deteriorated road conditions over a large area and thus force travelers to drive at lower speeds. However, sometimes minor winter weather conditions that are not expected to require any particular headline may impact only a small part of the forecast area. For these types of events, the National Weather Service may issue a Special Weather Statement to highlight the threat.

Slick roads and reduced visibilities caused by snow squalls resulted in a couple massive pile-ups on greater Cincinnati area interstates on January 21, 2013. ***Photo courtesy of the Cincinnati Enquirer/Gary Landers.***

Sub-headline winter weather events (events that do not reach the defined criteria for an advisory, watch, or warning) occur many times each winter season in the Wilmington forecast area. For example, a weak low pressure system may bring a quick one to two inches of snow to an area over a few hours, or perhaps snow showers could briefly reduce visibilities below a quarter mile. However, sub-headline winter weather events can be just as dangerous as more widespread winter storms. On many occasions these events evolve on fairly short notice, making them difficult to forecast. As a result, a Special Weather Statement may only be issued an hour before the onset of the event. In these situations, though an hour or so of lead time may exist prior to the onset of winter weather, travelers may already be on roadways with no knowledge of potential winter weather hazards that lie ahead.

This was the case late in the morning of January 21, 2013, when snow squalls produced near whiteout conditions along portions of Interstates 75 and 275 near the Cincinnati metro area, resulting in less than two inches of snow accumulation. That morning, strong cold air advection was occurring behind a departing low pressure system. Computer models were suggesting an inch or less of total snow accumulation over the course of the day, and the forecast called for snow showers to continue into the afternoon. Under normal circumstances in this part of the Ohio Valley, less than an inch of snow over a period of several hours would not warrant a headline, as the slow rate of accumulation would not cause significant hazards to life and property.



KILN radar at 11:35AM EST on January 21, 2013, about the time of the fatal pileup on I-275. Note the intense snow showers north of Cincinnati. ***Image courtesy of NWS Wilmington, OH.***

A look back at this event reveals that certain atmospheric ingredients were indeed in place for brief, intense snow showers to occur. That morning, under the influence of strong low level cold air advection, ample low level moisture, and some peeks of sunshine, the atmosphere became convectively unstable. This meant that the potential was there for some intense snow showers to develop (similar to a heavy rain shower in the summer), where there could be breaks in shower activity and even a bit of sunshine, followed by more heavy bursts of snow.

Light stratiform snow showers and flurries were in the area through about 10 AM, when snow showers started to become more distinct and intense. Observations during the period of light snow showers revealed visibilities of 6 to 7 miles with no accumulation reported—not a significant concern for road travel. *(Continued on page 10)*

A New Type of Radiosonde

Michael Kurz

NWS Wilmington, Ohio recently switched from launching Mark IIA radiosondes (left) to LMS-6 radiosondes (right). The LMS-6 weighs less, uses a dry-cell battery, and provides more accurate relative humidity data. ***Photo courtesy of Michael Kurz (NWS Employee).***

Back in 2007, NWS Wilmington joined dozens of other National Weather Service upper air sites across the country in a transition to the Radiosonde Replacement System (RRS) for collecting, processing, and disseminating upper air data. Up to that point, upper air launches had relied on antiquated ground tracking equipment dating from the 1950s and IBM computers from the 1980s! The switch to RRS was a huge leap forward in technology, featuring modern ground tracking equipment and computers, as well as a more sophisticated radiosonde that utilized GPS to calculate wind speed and direction. All this resulted in improved upper air data accuracy and resolution. Until recently, NWS Wilmington and all other RRS upper air sites used the Lockheed Martin Sippican Mark IIA radiosonde for taking soundings.

A new type of radiosonde was deployed and tested earlier this year at six National Weather Service upper air stations scattered across different regions of the country. In October, our office began releasing this new radiosonde, the Lockheed Martin Sippican LMS-6. The LMS-6 is about 100 grams lighter than its Mark IIA predecessor, which results in slightly less helium being used to inflate the weather balloon. It also features a dry-cell battery, whereas batteries for the Mark IIA radiosondes were activated by soaking them in water for a couple minutes. Finally, the LMS-6 provides improved accuracy of relative humidity data. Deployment of the LMS-6 radiosonde is now underway across the National Weather Service upper air network, and it is anticipated that over 50 of the 92 NWS upper air stations will make the transition by early 2014.

2013-2014 Winter Outlook

Andrew Snyder

There is one thing that seems fairly certain about the forecast for the upcoming winter, but unfortunately it does not tell us much about how things will pan out here in the Ohio Valley! The El Niño Southern Oscillation (ENSO) is one of the major global climate patterns. One of its main signals involves the temperature of the eastern equatorial Pacific Ocean. Above-normal ocean temperatures indicate an El Niño phase of ENSO, while below-normal ocean temperatures mean there is a La Niña phase. These two phases of ENSO can have distinct impacts on temperature and precipitation patterns at various locations around the globe. However, ocean temperatures are currently near normal, and there is good agreement among numerical weather prediction models that ENSO will remain in this "neutral" state throughout this winter season. There are very few well-defined impacts of a neutral ENSO, especially for the Ohio Valley. As a result, other factors could play a more dominant role in how our winter unfolds. The caveat is that many of these patterns evolve on much shorter time scales than ENSO and have very low long-range predictability. Two of these critical patterns are the North Atlantic Oscillation (NAO) and the Arctic Oscillation (AO). While too complex to discuss in detail here, these patterns can determine whether Arctic air is able to surge southward or is kept bottled up near the North Pole.

NOAA's Climate Prediction Center (CPC), which regularly issues long-range forecasts, has also noted the difficulties involved in forecasting the upcoming winter weather trends. Complicating matters, several long-range computer models have been showing conflicting forecasts for the winter season. As a result, the CPC has placed large sections of the country, including the Ohio Valley, in an "equal chances" category for both temperature and precipitation (see page 11 for CPC's winter outlook maps). This means there is not a strong or reliable enough climate signal in these areas to favor one category over the others. Thus, there is an equal chance (33.3%) for above-, below-, or near-normal temperatures and precipitation, but it is important to note that this does *not* mean the outlook is calling for an "average" winter. While all this leaves the 2013-2014 winter forecast in a "wait and see" limbo, there is little to suggest that the upcoming winter will be extreme on either end of the spectrum. *(Continued on page 11)*

Winter Weather

(continued from page 8)

It was not until after 11 AM, when intense snow showers began to move across the northern Cincinnati area, that the first reports of visibilities less than a quarter mile were received. Due to the showery, isolated nature of these heavier snow bursts, only one spotter report was received, while a few Department of Transportation cameras supported the issuance of a Special Weather Statement just before noon. By that time, however, a pair of intense snow showers had already moved across portions of Interstates 275 and 75 north of Cincinnati, producing near whiteout conditions and a quick, thin accumulation of snow on roadways. The combination of reduced visibilities and a slick road surface was lethal, with over 100 vehicles involved in two separate pileups on the interstates. Dozens were injured and a young girl was killed as a result of the accidents.

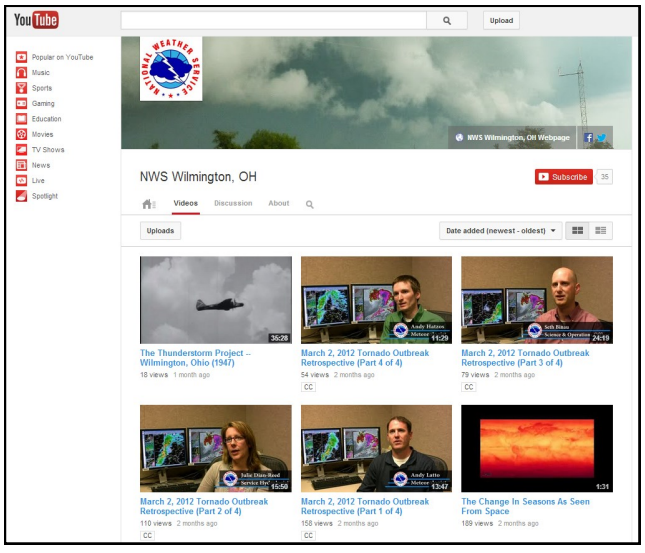
There are two issues that are brought to light from an event like this. The first is the need for forecasters to more easily recognize the patterns that can result in these intense, convective snow showers. Oftentimes these events evolve without a strong signal from weather prediction models in advance. Therefore, post assessments of these kinds of events should be conducted and analyzed to help increase forecast skill and lead time. The second issue is product dissemination. Even with a strong skillset in place to identify the potential for these snow burst events, sometimes we may not be able to get the word out more than an hour in advance.

Digital road signs are one way to notify drivers of rapidly changing weather conditions such as snow squalls. ***Photo courtesy of the Federal Highway Administration.***

When the word goes out from the National Weather Service for drivers to be mindful of rapidly changing weather conditions and potential road hazards, how will *all* drivers hear about it if some are already on the road? A couple of possible solutions include working with our partners to notify travelers via digital road signs when snow squalls are anticipated or imminent. Another future idea would be for newer vehicles to have a built in method of receiving safety messages for a variety of particularly dangerous road hazards, including those from snow bursts. Of course, it is incumbent upon all of us to use common sense and exercise extra caution when encountering winter weather while on the road: slow down, turn on your headlights, leave plenty of distance between you and the vehicle ahead, minimize distractions, and allow plenty of time to reach your destination.

We're Now On YouTube!

Andrew Snyder



NWS Wilmington, Ohio recently added an official YouTube channel to our social media suite. This channel will allow for a more permanent and visible home for any videos we create. With this added video capability, we will have the opportunity to improve and enhance our education and outreach programs. It will allow us to more easily display looping weather data, and from time to time we may also produce short videos that demonstrate something about the operations here at our office. Don't forget that you can view our March 2, 2012 tornado outbreak retrospective documentary (see page 6) on our YouTube channel as well. We hope you will find our YouTube presence as useful as we will!

Subscribe to NWS Wilmington Ohio on YouTube:
www.youtube.com/NWSWilmingtonOH

Kids Fuse Severe Weather Awareness and Art

Michael Kurz

One of the fun outreach and preparedness activities that our office enjoys participating in each year is the Ohio Severe Weather Awareness Poster Contest. Administered by the Ohio Committee for Severe Weather Awareness (OCSWA), this contest has been held each year since 1978 in an effort to educate citizens about the actions they can take to protect themselves and others before, during, and after severe weather occurs. Each spring, Ohio students in first through sixth grade design informative posters dealing with severe weather safety and preparedness, which are then judged based on creativity, effort, and technical correctness.

2013 overall state winning poster, designed by Nina Wolf, a 6th grader from Summit County. ***Image courtesy of OCSWA.***

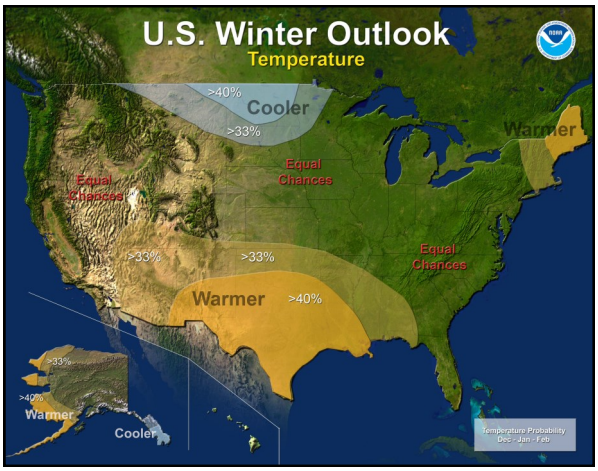
Participation is encouraged by all Ohio public, private, and home schools. Students illustrate safety tips for dealing with hazardous weather such as thunderstorms, tornadoes, floods, winter storms, and heat. Posters are first judged at the school level, with first-place posters from each grade getting submitted to the National Weather Service office serving that part of Ohio. Each of the five NWS offices covering Ohio chooses a winner from each grade level for the different regions within their area of responsibility. The winning regional posters are then forwarded to the OCSWA, which selects a state winner from each grade level. From among those state level winners, the OCSWA ultimately chooses an overall state winner.

All regional winners of the poster contest are invited to attend the awards ceremony at the Ohio State Fair in August. Each student artist is presented a certificate from the National Weather Service and sling backpacks full of prizes from the offices and partners that make up the OCSWA. The lucky state winners from each grade level receive a $50 savings bond, NOAA Weather Radio, smoke detector, and a letter of congratulations from the governor. In addition to a host of other prizes, the overall state winner also receives a $100 savings bond, disaster supply kit, and a personalized trophy. The overall state winner's poster is promoted by the OCSWA in severe weather preparedness materials and activities throughout the year, and the winner's school is loaned a "traveling" trophy to showcase throughout the upcoming school year.

It's always fun to attend the awards ceremony and see the faces of these young artists light up as they receive their certificates and bundles of prizes. But the real reward for us at the National Weather Service is knowing that these bright young minds are sharing what they have learned about severe weather preparedness with their friends and families—the best way to build a Weather-Ready Nation. If your child would be interested in entering the Ohio severe weather poster contest, please visit the OCSWA website for complete details.

Winter Outlook

(continued from page 9)



Winter temperature and precipitation outlooks (Dec 2013 - Feb 2014). The Ohio Valley and much of the rest of the nation has been placed in an "equal chances" category. This means there is an equal chance for above-, below-, or near-normal temperatures and/or precipitation. ***Images courtesy of NWS/ Climate Prediction Center.***